

PATENT CLAIMS

1. Motor vehicle with an air conditioning system (1), whose ducting (6,12,15) connects a compressor (3), which is attached to the engine (2) of the vehicle with at least one heat exchanger (8,10), which is attached to the vehicle body (7), wherein the ducting system (6,9,12,15), running in the engine compartment (31) of the vehicle, has at least one pipe curvature (37-40), which is determined by the installation geometry in the vehicle space, at least one part of the pipe conduits (6,9,12,15) of the air conditioning system is made of metallic substance and medium for vibration damping is provided to avoid transmission of vibrations from the compressor (3) to the vehicle body (7), characterized in that at least one pipe conduit (6', 12', 15'), which is connected on one side to the compressor (3) and to a heat exchanger (8, 10), which is attached to the vehicle body (7) on the other, is made entirely of metallic substance, inclusive of its pipe couplings (42-45), and has an outside diameter of less than 13 mm.

2. Motor vehicle according to Claim 1, characterized in that in at least one pipe conduit (6', 12', 15'), which is entirely made of metal, at least one damping curvature (35, 36) is additionally provided to at least one pipe curvature (37-40), which is determined by the installation geometry in the engine compartment.

3. Motor vehicle according to Claims 1 or 2, characterized in that one pipe conduit (9', 15'), in which a throttling of flow of the working medium of the air conditioning system (1) is to be provided in its functioning, is made as a thin pipe conduit (9', 15') with a capillary tube-like small inside diameter, which is suitable for throttling of flow.

4. Motor vehicle according to any of the Claims 1 to 3, characterized in that the working medium of the air conditioning system is CO₂ (carbon dioxide) and, in relation to the compressor (3), the outside diameter of its pipe conduits is smaller than 11 mm on the pressure side and smaller than 13 mm on the suction side.

5. Motor vehicle according to Claim 4, characterized in that an area of the CO₂- ducting of the air conditioning system (1), in which a throttling of flow of its working medium CO₂ is to be provided, is made as thin pipe conduits (9', 15') with a capillary tube like inside diameter of less than 2 mm and an outside diameter in the range of 2 to 4 mm.

6. Motor vehicle according to Claim 5, characterized in that a filter (53) is added in flow direction in the ducting before the pipe conduit (9', 15') with capillary tube-like inside diameter.

7. Motor vehicle according to any of the Claims 1 to 6, characterized in that at least one fully metallic pipe conduit (6', 12') of the ducting has an additional pipe coupling (46, 47) at a distance away from its connection couplings (42 – 45) for the compressor (3) and for the heat exchanger (8,10).

8. Motor vehicle according to any of the Claims 1 to 7, characterized in that in a pipe conduit (6'), leading from the compressor (3) to a heat exchanger (8) on the pressure side of the ducting of the air conditioning system (1), an enlargement of cross section (52) is provided for damping the pressure impulses in the working medium flow.

9. Motor vehicle according to Claim 8, characterized in that the enlargement of cross section of the ducting in a pipe conduit, which is intended for damping the pressure impulses, is provided in the form of muffler like pipe enlargement.

10. Motor vehicle according to any of the Claims 1 to 9, characterized in that the pipe conduits (6, 12, 15) of the ducting of the air conditioning system (1), including their pipe couplings (42 – 49) and their sealing elements, are made from diffusion- proof metal.